



Early-term elective laparoscopic resection after endoscopic detorsion in cases with sigmoid colonic volvulus

Sigmoid kolon volvulusu olgularında endoskopik detorsiyon sonrası erken dönem elektif laparoskopik rezeksiyon

Early-term laparoscopic resection after endoscopic detorsion in sigmoid volvulus

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Öz

Amaç: Sigmoid kolon volvulusu hızlı tanı konulması ve buna uygun tedavi planlanması yapılması gereken bir akut karın sebebidir. Bu hastaların tedavisinde cerrahi ve cerrahi dışı yöntemler kullanılmaktadır. Bu çalışmada sigmoid kolon volvulusu nedeniyle önce endoskopik detorsiyon yapılan, ardından erken dönemde elektif laparoskopik rezeksiyon uygulanan olguların sonuçları değerlendirildi. **Gereç ve Yöntem:** Ocak 2016- Temmuz 2017 tarihleri arasında kliniğimizde, önce endoskopik olarak detorsiyone edilen ardından Laparoskopik rezeksiyon + anastomoz yapılan 8 sigmoid kolon volvulusu olgusu çalışmaya dahil edildi ve kayıtları retrospektif olarak incelendi. **Bulgular:** Ocak 2016- Temmuz 2017 tarihleri arasında 8 sigmoid kolon volvulusu hastası opere edildi. Olguların 3'ü (%37,5) kadın, 5'i (%62,5) erkek olup, ortalama yaş 61,6 (35-75) idi. Preoperatif olguların tamamına hastanemiz acil kliniğinde tanı konuldu ve en geç 8 saat içerisinde endoskopik detorsiyon uygulandı. Hastalara işlem sonrası floroskopik kılavuz eşliğinde rektal tüp yerleştirildi ve tekrar volvulus olması engellendi. Hastalar ortalama 13,3 (10-15) gün sonra elektif operasyona hazırlandı. Olguların tamamına Laparoskopik sigmoid kolon rezeksiyonu + anastomoz yapıldı. Mortal seyreden hastamız olmadı. **Tartışma:** Genel durumu uygun olan hastalarda primer tedavi olarak, endoskopik detorsiyon işlemi sonrası elektif şartlarda rezeksiyon + anastomoz yapılmalıdır. Bu hastalarda laparoskopik rezeksiyon güvenle uygulanabilmektedir.

Anahtar Kelimeler

Sigmoid Volvulus; Endoskopik Detorsiyon; Laparoskopik Cerrahi

Abstract

Aim: Volvulus of the sigmoid colon is a cause of acute abdomen, which should be diagnosed quickly and appropriate treatment should be planned accordingly. Surgical and non-surgical methods are used for the treatment of such patients. In this study, the results of patients underwent endoscopic detorsion firstly due to sigmoid colon volvulus, followed by early elective laparoscopic resection were evaluated. **Material and Method:** Eight patients with sigmoid colon volvulus, who underwent endoscopic detorsion and then laparoscopic resection + anastomosis in our inpatient clinic from January 2016 to July 2017 were included in the study and their records were evaluated retrospectively. **Results:** Eight patients with sigmoid colon volvulus were operated from January 2016 to July 2017. Three of the patients (37,5%) were female while 5 of them (62,5%) were male, and mean age was 61,6 (35-75). All of the patients were diagnosed in the emergency department of our hospital, and endoscopic detorsion was performed within 8 hours at the latest. Rectal tubes were inserted under fluoroscopic guidance within the postoperative period to prevent reoccurrence of volvulus. Patients were prepared for elective operation after 13,3 (10-15) days on average. Laparoscopic sigmoid colon resection + anastomosis were performed on all patients. We did not have any mortality. **Discussion:** As a primary treatment, resection + anastomosis should be performed under elective conditions after the endoscopic detorsion procedure. Laparoscopic resection can be performed safely in such patients.

Keywords

Sigmoid Volvulus; Endoscopic Detorsion; Laparoscopic Surgery

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Introduction

Sigmoid volvulus is a cause of intestinal obstruction, which should be diagnosed in a short time and requires appropriate treatment, otherwise resulting in high morbidity and mortality rates. It is common at later ages, in men and those with comorbid diseases. Patients with sigmoid volvulus usually have a mesosigmoid with a long, mobile, narrow base in addition to an extremely long sigmoid colon. The sigmoid colon and mesocolon rotate around this narrow base [1]. If appropriate treatment is not performed in time, necrosis and perforation can frequently be seen secondary to ischemia. It is more common in underdeveloped regions with less socioeconomic level and rural regions [2]. Experiences of our center for sigmoid volvulus with laparoscopic resection were reported in this study.

Material and Method

Records of eight patients were retrospectively evaluated, for whom endoscopic detorsion was performed first due to volvulus of the sigmoid colon at the General Surgery Department of the Health Sciences University Mehmet Akif İnan Training and Research Hospital from January 2016 to July 2017 and then an elective laparoscopic resection was performed in earlier period unlike the conventional operations in other studies. The demographic characteristics, ages and genders, direct abdominal x-ray in standing position and computed tomography (CT) results, postoperative endoscopic detorsion time, preparation time for elective operation, operation time, postoperative follow-up period and morbidity-mortality rates of the patients were noted.

Results

Of the patients, five were male, and three were female, and their mean age was 61.6 (35-75). These patients applied to our hospital's emergency department with complaints of abdominal pain, distention, and an inability for defecation and fluctuation. All of the patients were diagnosed by physical examination, direct abdominal x-ray and abdominal tomography in standing position following suspicion (Fig. 1, 2). Endoscopic detorsion was performed within 8 hours at the latest. Rectal tubes were inserted under fluoroscopic guidance within the postoperative period to prevent reoccurrence of volvulus. Patients were prepared for elective operation after 13.3 (10-15) days on average for the purpose of not having an early recurrence. Laparoscopic sigmoid colon resection using four port trocars and anastomosis with end-to-end staplers were performed for all of the patients (Fig. 3). The mean operation time was 132 (100-180) minutes. The mean length of hospital stay of the patients was 7.3 (6-9) days. Wound site infection emerged in a patient with Diabetes Mellitus. Anastomotic leakage and postoperative mortality were not observed in patients.

Discussion

Volvulus of the sigmoid colon is seen in people who are debilitated, elderly and with chronic constipation and neuropsychiatric disease in regions where people consume pulpy foods and have a cellulose-rich dietary habit. Elderly people have high rates of morbidity and mortality due to comorbid diseases. Sigmoid volvulus constitutes 60-70% of all colonic volvuli. Of all colonic volvuli, cecal volvulus constitutes 20-30% while transverse and descending colon volvuli constitute 10% [3].

Patients usually presented with the complaints of abdominal distention, abdominal pain, an inability to defecate and fluctuation, nausea, and vomiting [4]. Physical examination, direct abdominal graphies, endoscopic examinations, CT, and magnetic resonance imaging (MRI) are used for the diagnosis of volvulus. On direct radiography, air-fluid levels in the dilated intestinal



Figure 1. Omega loop and coffee bean appearance in a dilated sigmoid colonic segment in an upright plain abdominal radiograph



Figure 2. Computed tomography scan images of the patient (a,b).



Figure 3. The appearance of trocars in laparoscopic approach

segments and omega coffee bean signs of the excessively dilated colon can be seen [5].

Different methods are used for the treatment of volvulus of the sigmoid colon. They are divided into surgical and nonsurgical methods. The non-surgical methods include rectal tube insertion, enema, rigid or flexible endoscopic decompression. These methods are the methods that should be tried without any doubt of gangrene or perforation when the patient first admitted. It is known that endoscopic decompression is the most effective non-surgical treatment method [6]. Despite the fact that detorsion procedures performed with endoscopic intervention have been successful at the rate of 76-89% in different studies, recurrence rates of 21-57% have been reported [7]. Therefore, it is recommended to perform sigmoid colon resection under stable conditions after endoscopic detorsion. It has been reported that detorsion with flexible colonoscopy is more successful than sigmoidoscopy [8]. A flexible colonoscope was used for the detorsion procedure in our series and tube was placed to proximal of the torsional segment for decompression. Emergency surgical intervention is necessary when nonsurgical methods fail, and necrosis and/or perforation of the colon is suspected. There is no available standard method for emergency surgery. Simple detorsion and fixation of the sigmoid colon on to the abdominal wall, extra-peritonealization and mesoplasty besides detorsion are recommended for patients with good bowel feeding. However, the recurrence rate of these methods is very high [9]. Resection of the sigmoid colon is the most effective method to prevent recurrence. Post-resection anastomosis or performing colostomy is a controversial circumstance. Some authors reported low morbidity and mortality rates after primary resection and anastomosis of the non-ischemic colon. Some believe that the colonic anastomosis without intestinal cleaning may not be safe and that there may be leakages [10]. Advantages of resection and anastomosis are the implementation of definitive treatment in a single step, not requiring a second intervention and the short duration of hospital stay [11]. No anastomosis leakage was seen in any of the patients in our study.

Low morbidity and mortality rates are reported after primary resection and anastomosis of the non-ischemic colon. Mortality has been observed to be significantly increased in volvulus with ischemia, necrosis or perforation, and the Hartmann procedure has been reported to result in less mortality in patients with necrosis of the colon [12]. None of the patients included in the study demonstrated any sign of necrosis or perforation at the time of admission.

It has been shown that there is a significant mortality difference between operations performed in emergency conditions and operations performed in stable conditions after endoscopic detorsion procedure [13]. Bak et al. have found that mortality is 36% after emergency surgeries and 0% after surgeries performed following detorsion [14]. Similarly, Grossman et al. have reported these rates as 24% and 6% respectively [15]. It has been reported that mortality is 12% in those with an endoscopic detorsion and with no further treatment. No mortality was observed in any of the patients included in our study.

In addition to providing decompression by means of endoscopic detorsion procedure, it is also possible to evaluate the bowel mucosa and to plan the treatment. On the other hand, necessary time is taken for pre-operative preparations for elective operation by improving the emergency conditions for the patients. Because of high recurrence was seen within the first month after decompression, definitive surgery is recommended for patients in the early stage [16]. Unlike classical publications, we have performed elective laparoscopic colon resection + anastomosis procedure within 15 days after effective detorsion. Today, laparoscopic methods are successfully used in the surgical treatment of colonic volvulus. It has advantages regarding low morbidity rate such as short length of hospital stay, fewer postoperative pain, and fewer wound site problems [17].

Conclusion

The clinical condition of the patient should be considered for the timing of the operation of sigmoid colon volvulus and different treatment options, and pre-operative endoscopic detorsion procedures should be performed for suitable cases. Elective laparoscopic surgery can be performed in the early stages for patients following a successful detorsion procedure. An emergency surgical intervention is inevitable in the presence of ischemia, necrosis or perforation or following a failed endoscopic detorsion.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

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Animal and human rights statement

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. No animal studies were carried out by the authors for this article.

Informed Consent

Informed consents were obtained from patients who participated in this study.

Competing interests

No conflict of interest was declared by the authors.

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